

Saturday last. Capt. Douglas Galton, C.B., was voted to the chair. It was unanimously resolved that H.R.H. Prince Leopold, Duke of Albany, who had graciously consented to accept the presidency, be formally elected to that office. Capt. Douglas Galton, in replying to a vote of thanks for presiding, said that the Museum had now entered on a fresh phase of existence, and had established itself as an independent institution in premises which, after necessary alterations had been completed, bid fair to serve its purpose, for the present at least, admirably. The Council contemplated making the sanitary arrangements necessary for the Museum itself as perfect as possible, and it was intended that all such arrangements should be useful for teaching purposes; the drainage, for instance, had been carefully considered by Prof. Corfield and Mr. Rogers Field, M. Inst. C.E., and the latter gentleman had generously undertaken to bear the whole expense of carrying it out. Mr. Twining had undertaken the whole trouble and cost of arranging, and for the most part of providing the Food Collection; the Warming, Lighting, and Ventilating have been referred to a Special Committee, whose endeavour it would be to insure that every appliance was the best of its kind. The general collection was to be carefully weeded and re arranged, and it was hoped that the Museum would be opened to the public soon after Christmas.

THE name *isanimones* has been recently applied by M. Brault to curves of equal velocity of wind, and he has made a drawing of such curves for the North Atlantic in summer, using for the purpose 240,000 observations on board ship. It is shown that an approximate numerical value may be attached to each of the ordinary terms used in ship's logs to denote the wind's force. M. Brault's map, which appears in *Comptes Rendus*, is remarkable in that it reproduces almost exactly the map of *mean isobars*. Thus, during summer, that is to say, when the atmosphere is most stable over the great North Atlantic basin, the mean *isanimones* and the mean *isobars* are the same, presenting only differences that are nearly equal to possible errors of observation and of construction. It remains to be seen in what measure this important law is general; M. Brault believes it to be so for every surface of the globe which is under what he calls fundamental maxima and minima (such as the maximum and minimum of Asia, the maximum of the Azores), the fixity and permanence of which are such that they form together, and at six months' interval two distinct systems which suffice to define the two great phases of the annual circulation. (*Ephemeral* maxima and minima are such as appear and disappear daily in our latitudes; while *mobile* or *tempestuous* minima such as cyclones or squalls, are grouped as a third class.)

IN his work on worms, Darwin has described some tower-like dejections which he never saw constructed in England, but which are attributed to an exotic species of *Pericheta*, from Eastern Asia, naturalised in the environs of Nice. M. Trouessart has lately observed similar dejections in gardens near Angers. Having collected a large number of worms from where the towers were made, he found no species of *Pericheta*, nor of any other exotic genus. In two or three cases he surprised the worms at work, and they were *Lumbricus agricola*. It was the anterior part of the body that was lodged in the tower. After the rainy period at the end of September all the tubular interior of each tower (forming a continuation of the subterranean gallery) was quite free; but a few days later it was obstructed by recent dejections. M. Trouessart supposes that the calotte or cap of the tower, getting hard in air, a time comes when the worm can no longer burst the upper wall as before, to place its dejections outside (so increasing the height of the tower), but deposits them within. Thus a long period of rain is necessary for these towers to rise regularly. The towers probably serve to protect the

galleries from rain, and to afford a breathing place for the worms, where they are not seen by birds.

WE learn from the *Rivista Scientifico-Industriale* that Baron V. Cesati has resolved to sell his botanical collection. This consists of a herbarium of about 32,000 phanerogamic species, also a special cryptogamic herbarium containing at least 17,000 species; altogether more than 350,000 plants. There is also a collection of autographs of 2500 botanists. Any one wishing to purchase is desired to apply to the owner, at the Botanical Gardens of Naples. Full particulars of the herbaria will be given.

IN the construction of a railway bridge recently over the Ticino, electric illumination has been used instead of that with stearine candles (previously preferred for the compressed air caissons). The hygienic conditions of the workmen in the caissons is thus greatly improved; as stearine candles impregnate the atmosphere with smoke. Eight lamps of the small Swan type are used to light the working chamber; a Siemens' dynamo of about 30 lamp-power supplying the current. A second dynamo is kept in reserve, to be used in case of breakdown or excessive heating. The additional cost of the system is regarded as largely compensated by the increased comfort in working.

THE additions to the Zoological Society's Gardens during the past week include a Vervet Monkey (*Cercopithecus lalandii* ♂) from South Africa, presented by Mr. G. H. Jones; nine Hairy-footed Jerboas (*Dipus hirtipes*), twenty-four — Gerbills (*Gerbillus* —) from Arabia, presented by Lieutenant Paget, R.N.; a Laughing Kingfisher (*Dacelo gigantea*) from Australia, presented by Mr. H. G. Austin; a Ceylon Jungle Fowl (*Gallus stanleyi* ♂) from Ceylon, presented by Mrs. Dick Lauder; a Spinose Land Emys (*Geomyda spinosa*) from Borneo, presented by Miss C. G. Robson; two Sharp-headed Lizards (*Lacerta oxycephala*) from Madeira, presented by Mr. H. J. Clements; three European Tree Frogs (*Hyla arborea*), European, presented by Miss L. Burness; a Rhesus Monkey (*Macacus erythraeus* ♂) from India, a Malbrouck Monkey (*Cercopithecus cynosurus*) from East Africa, deposited; two Canadian Beavers (*Castor canadensis*) from Canada, an Eyra (*Felis eyra* ♂), two Sun Bitterns (*Eurypyga helias*), a Brown Gannet (*Sula leucogastra*) from South America, two Globose Curassows (*Crax globicera* ♂ ♀) from Central America, a Razor-billed Curassow (*Mitua tomentosa*) from Guiana, a Greater Shearwater (*Puffinus cinereus*) from Lincolnshire, six Knots (*Tringa canutus*), a Lapwing (*Vanellus cristatus*), British, a Matamata Terrapin (*Chelys matamata*) from the Amazons, purchased; a Muscovy Duck (*Cairina moschata*) from South America, received in exchange.

#### OUR ASTRONOMICAL COLUMN

SCHMIDT'S COMETARY OBJECT.—We have received a circular (No. 48) of the Imperial Academy of Sciences of Vienna, containing a letter from Dr. Julius Schmidt, dated Athens, October 14, in which he notifies his discovery of a nebulous object not far from the head of the great comet, which will be best given in his exact words. He writes:—"Seit October 9, 16<sup>h</sup> 51<sup>m</sup>, liegt in S.W. neben dem Kometen eine der Form nach stark variable cosmische Nebelmaterie, welche die scheinbare Geschwindigkeit des grossen Kometen zwar etwas übertrifft, doch im Ganzen der Bewegung desselben entspricht." Dr. Schmidt appends the following places, the first and last being from measures, the second deduced from a star-chart.—

1882.	M.T. at Athens.	Apparent R.A.	Apparent Decl.	Dist. from nu- cleus of principal comet.
	h. m.	h. m. s.		
Oct. 9	16 54	10 15 53	—12 53	3 24
10	16 36	10 10 26	—12 43	4 25
11	16 37	10 5 51	—14 33	5 21

On submitting these positions to calculation by the ordinary method of Olbers for a parabolic orbit, Mr. Hind has found the

following elements, the second set being the result of the corrected value for the ratio of the curvate distances at the extreme observations, though the representation of the middle place is not sensibly improved thereby:—

Perihelion passage, Sept. 24 <sup>h</sup> 2778 G.M.T.		Sept. 24 <sup>h</sup> 0912
Long. of perihelion	... 234 42'6"	232 21'5"
" ascending node	... 350 2'4"	354 50'9"
Inclination	... 29 11'5"	29 41'9"
Log. perihelion distance	... 8.11394	8.26678
Motion—retrograde.		Retrograde.

The general resemblance of these elements to those of the great comet, will excite remark. The middle observation shows a difference from computation of  $-6'2''$  in right ascension, and  $-3'2''$  in declination by the second orbit; perhaps unavoidable error in an estimated place, or vagueness of the nebulousity may account for the differences, yet Dr. Schmidt speaks of having observed "Die Positionen des eines Kernes des seitlichen Nebels." Further, it may be observed that the orbit in which the great comet is now moving does not accord with the positions given by Dr. Schmidt: thus with the last elements published in NATURE, the observed and computed right ascension on October 9 will agree if the perihelion passage be assumed to have occurred September 13<sup>h</sup> 732, but the calculated declination is north of that observed by  $1^{\circ} 39'$ , and for the observation on October 11, the calculation is in error  $+1^{\circ} 56'$  in right ascension and  $+2^{\circ} 31'$  in declination. Nevertheless the general similarity in the arrangement of the elements suggests a past connection of the two bodies, and it may be hoped that further light will be thrown upon the question, if either earlier or later observations of Dr. Schmidt's object are forthcoming.

COMET 1882 *b*.—In an unusually clear sky for the season on the morning of October 23, a fine view of this comet was obtained in the vicinity of London; the length of the more definite portion of the tail was about  $16\frac{1}{2}^{\circ}$ . At 5 a.m. on October 30, with strong moonlight and a somewhat vaporous sky, it was still conspicuous, notwithstanding the material diminution in the theoretical intensity of light. If the tail extended in the same direction from the nucleus on both dates, there was a large increase in its real dimensions in the course of the week. In fact, on October 30, if we assume the tail to have been a prolongation of the radius-vector, it would cover a space considerably greater than the mean distance of the earth from the sun, and with any reasonable assumption as to deviation from that line, its true length could hardly have been less than 70,000,000 miles.

The place given by M. Cruis for the comet he found at Rio Janeiro on September 12 a.m., differs  $5^{\circ} 43'$  in right ascension, and  $1^{\circ} 25'$  in declination from that occupied by the great comet at the time.

From an observation at the Collegio Romano, in Rome, on the morning of October 25, kindly communicated by Prof. Millosevich, it appears that the elements last published in this column were in error  $-2'4''$  in right ascension and  $-0'3''$  in declination, small differences, considering that the last observation used in their determination was made on October 1, and a proof of the precision of the observations issued from the Collegio Romano.

### GEOGRAPHICAL NOTES

THE Council of the Geographical Society have made the final arrangements for their new African expedition under Mr. Joseph Thomson. Mr. Thomson hopes to leave England in the end of November for Zanzibar, where he will stay some months getting together his retinue and goods, and making other provisions for his hazardous journey. He will probably leave the coast in April or May next. The field of the new expedition lies to the east and north-east of Lake Victoria Nyanza, and may include a running survey of the eastern shore of the lake. The expedition will probably start from Pangani, and ascend the river of that name as far as Kilima Nyaro, whence they will proceed direct to Victoria Nyanza. The route after that will depend much on circumstances, but Mr. Thomson hopes to visit the reputed Lakes Babringo and Samburu, as also Mount Kenia. Probably Mounts Kenia and Kilima Nyaro will be more carefully examined than they have been, and beyond them the country to be traversed by the expedition is almost totally unexplored. On its borders we

meet with the names of such travellers as Denhardt, Krapf, New, Wakefield; but the field is practically virgin. A great part of the region is a wilderness, rendered so by roving Masai, whose depredations have scattered the population and rendered culture impossible. Besides the danger from these roving freebooters, the expedition will be compelled to carry its own provisions to a large extent, as there is no likelihood of getting a regular supply on the spot. Water, too, it is feared, will be scarce, so that on the whole Mr. Thomson will have a trying task before him. The expedition will be purely geographical, but it is almost certain that a naturalist will accompany Mr. Thomson as far as Kilima Nyaro, partly at the expense of the British Association. Mr. Thomson will, however, be in no way responsible for the safety or the conduct of the naturalist's party. It is probable that Dr. Aitchison, who did good work in natural history during the Afghan war, will be selected for this work, and his retinue and all his arrangements will be quite independent of those of Mr. Thomson; the two parties will simply go together so far as their route is in common.

MR. STANLEY has published separately a full report of the address he recently gave in Paris. From this we glean one interesting item of exploration. After he had launched his steamer on the upper waters of the Congo, above the cataracts, he proceeded up the river and entered the Kwango, the great southern tributary. One hundred miles from its mouth he came to where two large streams united to form the main river; a greyish-white stream from south by east, the other, of an inky colour, from east by south. Ascending the latter, much less rapid than the former, Mr. Stanley came, after steaming another 120 miles, to a large lake, into which the river widened. On circumnavigating it, he found it about seventy miles in length, and with a breadth varying from six to thirty-eight miles. The natives he found very wild, and naturally astonished at the puffing monster. A splendid country the shore seemed to be—dense, impenetrable—lofty forests, alternating with undulating grass lands. Mr. Stanley was altogether three years away from Vivi, and doubtless he has collected much information in the country around the Congo. If the five stations established on the banks—one at the mouth of the Kwango—are left unexplored, much material of value to science may be collected; they are superintended by Europeans, who have all the apparatus for taking meteorological and other observations.

ON Sunday, October 29, the Paris Society of Topography distributed its medals in the large Hall of the Sorbonne. M. de Lesseps was in the chair. The three great medals were awarded to M. D. Brazza, M. Roudaire, and Commander Perier. One of the others to M. Triboulet, treasurer of the Academy of Aérostation Météorologique, for his continuous efforts in aerial photography and the success obtained nineteen days ago in photographing the horizon visible from a captive balloon, with an apparatus put in operation from the ground.

AT the last meeting of the Section of Physical Geography of the Russian Geographical Society, M. Grigorief made a report on the results of Arctic exploration during last summer; W. E. Fuss read a communication on his visit to Novaya Zemlya, which was made to determine accurately the position of the new meteorological station; and M. Rykatcheff a communication on meteorological observations he made during an ascent in a balloon.

THE students of the Physical and Mathematical Faculty of St. Petersburg have presented M. Miklukho Maclay with an address of thanks for his valuable researches, and express the wish that the results may soon be given to the world.

A RECENT issue of the *North China Herald*, published at Shanghai, contains an article on a Chinese work entitled "Travels in India." The work is of interest as exhibiting the impression made on an intelligent Chinese traveller by the results of Western civilisation. The author, Huang Mao-ts'ai, is, it appears, a literary graduate of Kiangsi, who became impressed with the importance to China of knowing what is going on in neighbouring countries, and accordingly obtained, in 1878, a commission from the Governor of Szechuen to pass through Thibet to India. Arriving at Patang he was deterred by the hostility of the hill tribes from proceeding further in that direction, and he therefore retraced his steps, turning southward into Yunnan, whence he crossed into Burmah, and descending the Irawaddy to Rangoon, he took passage for Calcutta. He spent six months in India, returning to China by Singapore and Saigon.